

REMARKS

Claims 16-21, 24-26, 29 and 34 stand rejected under 35 U.S.C. §102(a/e) as being anticipated by Kabumoto et al. (US 5,723,510). In the latest Office Action, the Examiner maintained that while Kabumoto does not explicitly teach a membrane having an open pore foam, such would be inherent "since the reference teaches the same process as that of the applicant." However, Kabumoto's process is not "the same process" as that claimed by applicants. Kabumoto's process is directed to the use of thermoplastic polyesters such as polyethylene terephthalate and polybutylene terephthalate, which are typically in crystalline form. Applicants prefer the use of amorphous polymers which would exclude crystalline thermoplastic polyesters. See the paragraph bridging pages 5 and 6 of the specification, amended claims 16 and 29, and new claim 35. As the process taught by Kabumoto utilizes different polymers than those in the claimed method, there is no support for the Examiner's speculation regarding inherency of open cells in Kabumoto.

Further, as previously pointed out, Kabumoto et al. do not teach or suggest the use of a solvent for the purpose of dissolving or swelling their polyesters, nor do they teach the use of a solvent which provides the resulting open cell membrane with uniformly sized small pores as taught in the specification at page 2, lines 16-20 and as recited in amended claim 16. Nor do Kabumoto et al. teach or suggest the use of less than 4.0% by weight of a solvent as recited in new claim 36. Basis for the new claim may be found in the specification at page 2, lines 11-12.

Nor is there any teaching in Kabumoto et al. which would lead one to believe that their process would produce a membrane having open cells as claimed. As previously pointed out, Kabumoto teach a thermoplastic polyester foam sheet for use as a heat insulating material, packing material, etc. having improved mechanical strength. In order to obtain such improved mechanical strength, one would desire that the structure of the polyester foam be a closed pore structure, not an open cell structure. Amended claims 16-21, 24-26, 29 and 34, and new claims 35 and 36 are clearly patentable over Kabumoto et al.

Claims 16-34 stand rejected under 35 U.S.C. 102(a/e) as being anticipated by Klötzer et al. (US 5,980,795). As applicants previously pointed out, Klötzer et al. teach away from the

addition of solvents and criticizes prior art processes that use solvents. While the Examiner acknowledges that Klötzer et al. teach away from the use of solvents, he has taken the position that Klötzer still anticipates the claims, asserting that "a reference is no less anticipatory if, after disclosing the invention, the reference then disparages it." Applicants submit that this assertion is inapposite because nowhere does Klötzer teach using solvents. The Examiner reasons that Klötzer's teaching away from the use of solvents "does not mean that the process would not work if the solvents or additives are used," asserting that one skilled in the art would find it advantageous to use solvents or additives in the Klötzer process to make porous hollow fibers using spinning equipment "as taught by Siggel." However, Klötzer does not teach or suggest a process of making porous hollow fibers and thus would not need solvents or additives. Nor does Klötzer provide any indication that their process would work if solvents were used. As acknowledged by the Examiner, Klötzer teaches that their membranes are for use in human or veterinary medicine or bio- or environmental applications, where residual amounts of solvent are unacceptable. See col. 4, lines 4-9.

Further, contrary to the Examiner's assertion, Klötzer et al. have not disclosed the claimed method, i.e., they do not teach or suggest a method which includes the step of adding "a fluid that dissolves or swells the polymer or mix of polymers." In order for there to be anticipation, the disclosure in the reference must teach each and every element of the claimed invention. *Ex parte Levy*, 17 USPQ2d 1461, 1462 (PTOBPAI 1990). Failing to teach an element of a claimed invention and then teaching away from using such element does not constitute anticipation.

Applicants further wish to point out that Klötzer et al. is discussed in the background portion of applicants' specification as producing a membrane having unsatisfactory separation results due to the large size of the pores. As taught in applicants' specification and as recited in amended claims 16, 29, and new claim 35, it is the addition of a fluid (solvent) which results in a high degree of open porosity and a **uniformly small** pore size. Klötzer et al. do not teach a uniformly small pore size, and in at least one preferred embodiment, teach a "predetermined

porosity gradient." See col. 4, lines 1-3. Claims 16-34, as amended, are not anticipated by Klötzer et al.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kabumoto et al. (US 5,723,510). While the Examiner acknowledges that the limitation of claim 22 is not explicitly taught by Kabumoto, he has taken the position that the processes of claim 21 and 22 are equivalent, asserting that Kabumoto "performs the function specified in the claim in substantially the same manner as the function performed by corresponding element described in the specification." As applicants previously pointed out, equivalency is an improper standard for determining obviousness. There is no teaching or suggestion in Kabumoto et al. of heating a polymer above its glass transition temperature and then foaming by reducing pressure. Claim 22 is clearly patentable over Kabumoto et al.

Claims 16-27 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klötzer et al. (5,980,795) in view of Siggel et al. (US 4,380,594). The Examiner again acknowledges that Klötzer et al. do not teach or suggest the use of a fluid that dissolves or gels the polymer, but asserts that it would have been obvious to do so from the teachings of Siggel et al., who teach a process for forming a closed cell foam in which 1% of a silicone oil is added to a polymer. As acknowledged by the Examiner, Klötzer et al. teach away from the use of solvents, so there is no motivation to combine the teachings of Klötzer et al. with Siggel. Further, neither Klötzer et al. nor Siggel teach a method which utilizes a fluid that dissolves or swells the polymer in a manner which results in an open pore membrane having a uniformly small pore size as recited in amended claim 16. While the Examiner reasons that one would modify Klötzer et al. in order to "have more homogeneous pores," there is no motivation for one to do so, especially when Klötzer et al. teach away from forming uniform sized pores in at least one embodiment.

Applicants further wish to reiterate that there is no teaching or suggestion in Siggel that their silicone oil would function as a solvent if used in the process of the present invention. As previously pointed out, it is known in the art that silicone oils generally do not dissolve or swell polymers, and especially the polymers disclosed in Siggel et al., i.e., polyethylene terephthalate

and polyamides. The Examiner has concluded that because the reference describes the polymer melt as a "homogenized mix," the polymer and silicone oil must be miscible. However, the Examiner has cited no factual evidence to support his speculation. Claims 16-27 and 29-34 are clearly patentable over Siggel et al. and Klötzer et al.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klötzer in view of Siggel and further in view of Malon et al. (US 5,013,767). The Examiner asserts that it would have been obvious to use a polysulfone solvent as taught in Malon in Klötzer in view of Siggel. As discussed above, there is no motivation to use a solvent in Klötzer, who teaches away from using solvents, nor is there any motivation to combine the teachings of Siggel et al. and Klötzer et al. Nor has the Examiner provided any motivation or reasoning as to why one skilled in the art would look to Malon to use a solvent. As previously pointed out, the method taught by Malon relies on phase inversion of polymer solutions to form the membranes, not gas charging and foaming as taught in Siggel and Klötzer. There is clearly no motivation to combine the teachings Siggel, Klötzer, and Malon.

Nor do Malon et al. teach or suggest that the polymer or polymer mix contains from about 0.05 to about 4.5% by weight of a fluid that dissolves or swells the polymer or mix of polymers as recited in claim 16, from which claim 28 depends. Rather, Malon et al. teach polymer solutions comprising between 70 and 85 weight percent of the solvent (see col. 20, lines 5-45). Claim 28 is clearly patentable over the cited art.

Ser. No. 09/914,005  
Atty. Dkt. No. WEB 0044 PA

For all of the above reasons, claims 16-34 as amended, and new claims 35 and 36 are clearly patentable over the cited art of record. Early notification of allowable subject matter is respectfully requested.

Respectfully submitted,  
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